Staffordshire (probably enclosed by the middle of the thirteenth century); Chillingham Park, near Belford, Northumberland (possibly enclosed before 1220); Cadzow Park, Lanarkshire; and Somerford Park, near Congleton, Cheshire. Cadzow Park occupies a portion of the old Caledonian Forest. At Blickling and Woodbastwirch, both in Norfolk, offshoots (domesticated) of the herd which once was kept at Middleton Park, Lancashire, still exist. The herd (enclosed at the end of the fourteenth century) at Lyme Park, near Disley, Cheshire, is now extinct. Other herds existed until recently at Colly Deer Park, Ardrossan and Drumlanrig, all in Southwestern Scotland.

Dr. E. L. Trouessart's catalogue of the Carnivora, living and fossil, comprises nearly 700 species. The group is divided into two sub-orders: the Creodonta and the Carnivora Fissipedia, the first of which is arranged under the families Arctocyonidæ, Mesonychidæ, Hyænodontidæ, Leptictidæ, Oxyænidæ, and Miacidæ. The Canidæ are placed with the Arctoidea, which thus corresponds with the Hyponycteri of Cope.

ENTOMOLOGY.[1]

New Instances of Protective Resemblance in Spiders.—Within the past two years two interesting cases of protective resemblance have come under my observation. A small species, *Thomisus aleatorius* Hentz, is remarkable for having the two anterior pairs of legs very long, while the two posterior pairs are very slender and short. The spider is very common on grass. One summer day, while reclining in the shade, I watched an individual of this species as it passed from one culm to another. Soon it ran up the stem a short distance and suddenly disappeared from view. For some time I was greatly puzzled as to the manner of disappearance. Upon close scrutiny I saw the spider clinging with its posterior legs to the stem. Its two anterior legs on each side were approximated and extended outward, forming an angle with the stem, strikingly similar to the angle formed by the spikelets.

An undescribed species of *Cyrtarachne* mimics a snail shell, the inhabitant of which during the summer and fall is very abundant on the leaves of plants in this place. In the species of *Cyrtarachne* the abdomen partly covers the cephalothorax, is very broad at the base, in this species broader than the length of the spider, and rounds off at the apex. When it rests upon the under side of a leaf with its legs retracted it strongly resembles one of these snail

[1] This Department is edited by Prof. J. H. Comstock, Cornell University, Ithaca, N. Y., to whom communications, books for notice, etc., should be sent.

shells by the color and shape of its abdomen. The two specimens which I collected deceived me at first, but a few threads of silk led me to make the examination. The spider seemed so confident of its protection that it would not move when I jarred the plant, striking it several hard blows. I pulled the spider forcibly from the leaf, and it did not exhibit any signs of movement until transferred to the cyanide bottle. The cocoons which I have found here are also protected by mimicry. They are essentially like those of *Cyrtarachne bisaccata* Emert.[1] They are dark brown, about 12 mm. in diameter, and are provided on two opposite sides with stems made of the same colored silk, about 5 mm. in diameter. The whole structure, which is hung in the branches of some weed, strongly resembles an insect gall made on the stem of some plant. As the species seems to be new, I append a description.

Cyrtarachne multilineata, n. sp. Middle eyes on a slight elevation, forming a trapezium, the posterior a little larger and farther apart than the anterior. Side eyes at a distance, very close to each other, also on a slight elevation. Cephalothorax brownish, rising gradually from the low head to the abdomen, which partly covers it, not narrowed behind the eyes, convex on the sides, covered with minute pointed tubercles, the two dorsal elongated prominences ending each in two blunt points. Abdomen triangular, sides slightly convex, angles rounded, ventral surface deeply concave. Anterior one-third of abdomen hair brown mottled with the ground color—ecru drab—a pair of large spots of the ground color near the posterior edge of the brown. On the posterior part of the abdomen are several transverse bars of hair brown, becoming successively narrower and shorter toward the apex. Four of the muscular impressions very deep. Sides and posterior part of the abdomen densely marked with hair, brown depressed lines, starting from near the centre of the ventral surface, and passing up over the dorsal surface of the edge, four of those on the posterior part passing up nearly to the posterior pair of deep muscular impressions. On the ventral surface there is a rectangular spot extending from the spinnerets to the anterior edge, the anterior half of this brown, the posterior white; the depressed lines arise from the sides of this spot. Legs light colored. Described from two females. Length of the larger 13 mm., abdomen 15 mm. broad, 10 mm. long; length of the smaller 11 mm., abdomen 13 mm. broad, 9 mm. long. —*George F. Atkinson, University of North Carolina, Chapel Hill, N. C.*

NOTE ON THE TUBE-INHABITING SPIDER, *Lycosa fatifera* Hentz. —There seems to be a general impression that the tube-building Lycosidæ do not use their holes for such a permanent abiding place as do the species of trap-door spiders. Good authorities hold

[1] Trans. Conn. Acad. Sci., vol. vi., 1884, p. 325.

that a majority, and perhaps all, use the tube only as a winter resort, or for a retreat in the summer during the time of molting, though the testimony upon this point is by no means universal. There seems good reason, however, for believing that very nearly all desert their tubes during the spring and summer, at times, and wander in search of their prey. Indeed, there are indications that there are latitudinal, as well as seasonal variations in the habits of the family, *i.e.*, that in northern latitudes proportionately a greater number make no tubes than in southern latitudes. The latitudinal variation might be called generic, in that many species of the genus in northern latitudes hide away under stones, etc., making no tubes at all; while in southern latitudes many other species of the same genus construct tubes, some few using them habitually; many others temporarily. On the other hand, the seasonal variation might be called specific, in that most species, in any latitude, which construct tubes use them only during inclement seasons, or during periods of weakness. One species I have observed here, *Lycosa fatifera* Hentz, habitually uses its tube at all seasons; never, or very rarely, wandering in search of prey. I have many times watched them resting at the opening of the tube, waiting for passing insects. They will dart back into their tubes when alarmed. Hentz reported this species from Massachusetts and Alabama. I have made special investigations upon the species in North Carolina, with a view to establish, if possible, the identity of Hentz's species *fatifera*, and the correctness of his statement that it uses the tube habitually at all seasons. The species can be easily recognized from Hentz's description. The one I find here is the piceous variety, which Hentz reported from Alabama, and not the typical form from Massachusetts.—*Geo. F. Atkinson, University of North Carolina.*

EMBRYOLOGY.[1]

THE SEVERAL FUNCTIONS OF THE ENAMEL ORGAN IN THE DEVELOPMENT OF THE TEETH OF MAMMALS AND ON THE INHERITANCE OF MUTILATIONS.— As long ago as 1880 Dr. A. Von Brunn[2] called attention to the fact that the cross crests of the crowns of the molars of the common grey rat were not completely covered with an enamel coating before eruption. The figures then published by Von Brunn showed that the *membrana adamantina* of the enamel organ possessed the characteristic columnar structure

[1] Edited by Prof. Jno. A. Ryder, Univ. of Penna,, Philadelphia.

[2] Notiz über unvollkommene Schmelzentwickelung auf den Mahlzähnen der Ratte Mus decumanus. Arch. f. mik. Anat. XVII., pp. 241–243, pl. XXVII.